

Weekly Report (2014.06.02-2014.06.08)

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1. Mobile Data

This week, I firstly split the flow between bases into two parts, one is flow from bases and the other is flow to bases. Then I count the amount of user ids appeared at each bases and use color to represent this amount. 2D Fourier Transform is implemented to approximate the shape that the vectors formed at each bases. The number of basis functions is determined by $\log_2 N$, N is the amount of vectors at each base. Figure 1 is the current result at 7:00 am.



Figure 1 7:00 am

From figure 1 we can see that the directions of flows of bases are very clear and most of them are along the nearest streets. There are mainly two shapes, line and cross. A line means that the main flow has only one direction and a cross means that the main flow has two directions.

The main problem of current results is that they look the same. Figure 2 is the results at 12:00 am and 18:00 pm, there are little difference between them. I think this is abnormal and next week I will find the reason of this phenomenon.

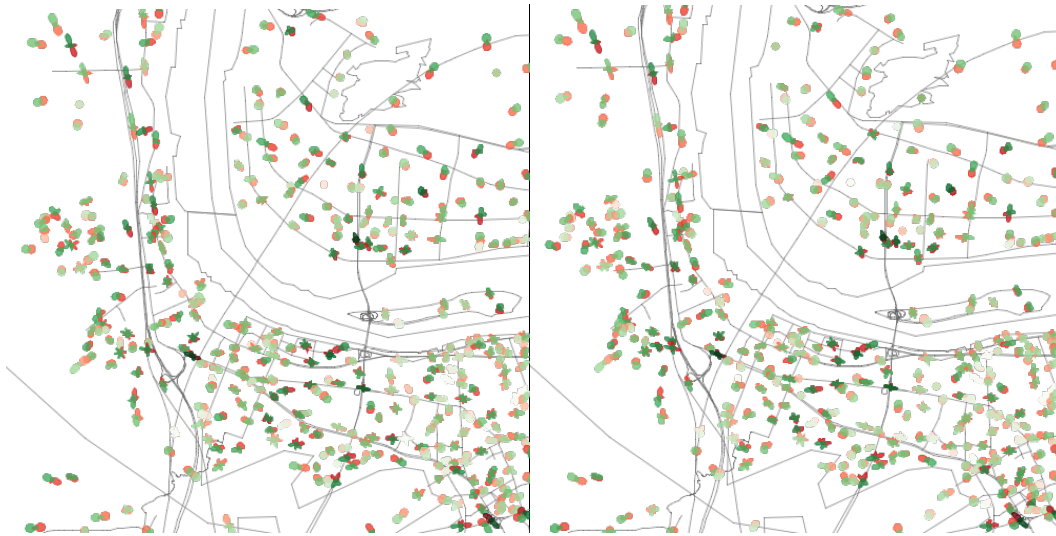


Figure 2 left: 12:00 am, right: 18:00 pm

This week I also considered the visual encoding of this vector field. I think that a star map may be a good choice. Environment light can be add to represent the “energy of city”, which is the amount of exchanges among bases. The flows from bases and to bases can be encoded as corona.

2. Survey of Traffic Visualization

I find 30 papers about traffic visualization and skim through these papers. Currently, I think the survey may contain five parts:

1. Problems that traffic visualization mainly solves like events, incident, flows and etc.
2. Data that traffic visualization uses and pre-processing of data like map matching and etc.
3. Methods that traffic visualization uses.
4. Traffic visualization systems already exist.
5. Conclusion.

The details of each part are not decided because I haven't read through all papers I found and some extra papers may be needed.

3. Summer Camp

This week me and Yuxin Ma interviewed five students who want to participate the summer camp, among them, 张炼钢 and 魏铮铮 seem to be appropriate.